

# Childhood obesity epidemic could be tackled by expectant mothers adjusting their diet

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Research in Singapore finds that babies have lower abdominal fat when their mothers' diet is relatively protein-rich and low in carbohydrate and fat during pregnancy. A\*STAR researcher Mary Chong says this revelation may offer a new strategy for very early intervention to tackle the growing problem of obesity in childhood and later life.

This research is part of a large scale ongoing study of mothers and infants called 'Growing Up in Singapore Towards healthy Outcomes (GUSTO)', a collaboration between Singapore's National University Health System (NUHS), KK Women's and Children's Hospital (KKH) and the A\*STAR Singapore Institute for Clinical Sciences.

The dietary choices of 320 [pregnant women](#) were recorded around the 27th week of pregnancy, followed by MRI scans to detect the abdominal fat levels of their babies two weeks after birth. These scans reveal details of the distribution of abdominal fat, which is more revealing than merely assessing total fat in the body. The women consuming most protein were still eating amounts of protein within the normal range recommended by dietary guidelines. The effect on their babies' abdominal fat levels was particularly noticeable in boys, and was only linked to high consumption of animal protein, not plant protein.

"Childhood obesity and [metabolic diseases](#) have reached epidemic levels globally," says Ling-Wei Chen, joint first author of the research paper, together with Mya-Thway Tint, both at Singapore's Yong Loo Lin School of Medicine. He adds that Asians are at higher risk of metabolic

diseases than Caucasians of similar BMI levels. The study's focus on mothers of Asian origin therefore makes it especially relevant for planning effective dietary guidance throughout the region.

One strength of the GUSTO study is that it can tease out differences related to different cultural backgrounds. The beneficial influence of [high protein diets](#), for example, was stronger in Chinese and Indians than in Malays. "This may be due to inherent differences in body composition, or dietary pattern, among these groups," says Yung Seng Lee, also of the A\*STAR group.

The researchers are now monitoring the children through their early years to detect longer- term effects. They have already performed new MRI scans in the children's fifth year, with further scans planned between 12 and 14. "Our early results may provide invaluable information for offering better nutritional guidance to pregnant women and those planning a pregnancy, but we need to continue to track the growth of these children to confirm this" says Lee.

**More information:** L.-W. Chen et al. Maternal Macronutrient Intake during Pregnancy Is Associated with Neonatal Abdominal Adiposity: The Growing Up in Singapore Towards healthy Outcomes (GUSTO) Study, *Journal of Nutrition* (2016). [DOI: 10.3945/jn.116.230730](https://doi.org/10.3945/jn.116.230730)

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